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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/876,492 | 06/07/2001 | Madhav Mutalik | E00295/70144 (EJR) | 9317 |

23628 7590 10/04/2005

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| EXAMINER |
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JACOBS, LASHONDA T

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| ART UNIT | PAPER NUMBER |
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2157

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/876,492

Applicant(s)

MUTALIK ET AL.

Examiner

LaShonda T. Jacobs

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on August 11, 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

This Office Action in response to Applicants' RCE filed on August 11, 2005. Claims 1,14, 24 have been amended. Claims 1-36 are presented for further examination.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims **1-36** are rejected under 35 U.S.C. 102(e) as being anticipated by Ohran (U.S. Pat. No. 6,397,307).

As per claims **1, 23 and 24**, Ohran discloses a method, system and computer-readable medium for mirroring data of a first storage area, comprising:

- placing a second storage area in a first state, wherein the first state of the second storage area is a state in which updates to the first storage area are made to the second storage area (col. 8, lines 15-26, col. 10, lines 21-44 and col. 12, lines 11-23);
- mirroring data from the first storage area to the second storage area while the second storage area is in the first state (col. 8, lines 49-67);

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- changing a state of the second storage area from the first state to a second state in which updates to the first storage area are not made to the second storage area (col. 8, lines 49-67); and
- restoring data to the first storage area from the second storage area while maintaining the second storage area in the second state (col. 8, lines 15-26, col. 10, lines 21-44 and col. 12, lines 11-23).

As per claim 14, Ohran discloses a storage system comprising:

- a first (primary) storage area (col. 10, lines 21-44);
- a second (secondary) storage area (col. 10, lines 21-44); and

at least one controller that:

- places the second storage area in a first state wherein updates to the first storage area are made to the second storage area (col. 8, lines 15-26, col. 10, lines 21-44 and col. 12, lines 11-23);
- mirrors data from the first storage area to the second storage area while the second storage area is in the first state (col. 8, lines 49-67);
- changes a state of the second storage area from the first state to a second state in which updates to the first storage area are not made to the second storage area (col. 8, lines 49-67); and
- restores data to the first storage area from the second storage area while maintaining the second storage area in the second state (col. 8, lines 15-26, col. 10, lines 21-44 and col. 12, lines 11-23).

As per claims 2, 15 and 25, Ohran further discloses:

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- writing, only to the first storage area, any data received during the act of restoring (col. 8, lines 15-26, col. 10, lines 21-44 and col. 12, lines 11-23).

As per claims 3, 16 and 26, Ohran further discloses:

- maintaining, after the act of restoring is complete, the second storage area in the second state(col. 8, lines 15-26, col. 10, lines 21-44 and col. 12, lines 11-23).

As per claims 4, 17 and 27, Ohran further discloses:

- receiving a read request issued by a host (col. 19, lines 3-24).; and
- reading, during the act of restoring, data from the second storage area in response to the read request when the data has not been restored to the first storage area (col. 19, lines 3-24).

As per claims 5, 18 and 28, Ohran discloses:

- wherein the act of changing further comprises allowing the second storage area to be accessed independently from the first storage area (col. 8, lines 49-67).

As per claims 6, 19 and 29, Ohran discloses:

- wherein the act of restoring includes performing an incremental restore of data from the second storage area to the first storage area (col. 8, lines 15-26, col. 10, lines 21-44 and col. 12, lines 11-23).

As per claims 7, 20 and 30, Ohran discloses:

- wherein the act of restoring includes performing a full restore of data from the second storage area to the first storage area (col. 8, lines 15-26, col. 10, lines 21-44 and col. 12, lines 11-23).

As per claims 8, 21 and 31, Ohran further discloses:

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- assigning an address to the second storage area, the second storage area being capable of being accessed through the address independently from an address of the first storage area (col. 9, lines 28-42).

As per claims 9 and 22, Ohran discloses:

- wherein the first storage area and second storage area are respectively located on first and second logical volumes of a storage system (col. 11, lines 56-67 and col. 12, lines 1-10).

As per claims 10 and 33, Ohran further discloses:

- indicating whether data has been restored to the first storage area from the second storage area (col. 8, lines 15-26, col. 10, lines 21-44 and col. 12, lines 11-23).

As per claims 11 and 34, Ohran further discloses:

- restoring data read from the second storage area to the first storage area (col. 8, lines 15-26, col. 10, lines 21-44 and col. 12, lines 11-23).

As per claims 12 and 35, Ohran discloses:

- wherein at least one of the placing, mirroring, changing, and restoring acts is initiated by a command issued at a host computer (col. 19, lines 3-16).

As per claims 13, Ohran discloses:

- wherein, after the changing act, the second storage area contains a snapshot of data of the first storage area at a given time (col. 17, lines 25-50); and

wherein the method further comprises:

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- updating, after the restoring act is complete, data within the first storage area such that the updated data within the first storage area is different from the snapshot of data (col. 17, lines 25-50); and
- restoring, from the second storage area, the snapshot data to replace the updated data within the first storage area (col. 12, lines 11-23 and col. 17, lines 25-50).

As per claims 36, Ohran discloses:

- causing the computer to perform updating after the restoring act is complete, data within the first storage area (col. 8, lines 15-26, col. 10, lines 21-44 and col. 12, lines 11-23); and
- restoring, from the second storage area, data to replace the updated data within the first storage area (col. 8, lines 15-26, col. 10, lines 21-44 and col. 12, lines 11-23).

Response to Arguments

3. Applicant's arguments with respect to claims 1-36 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat. No. 5,787,485 to Fitzgerald et al

U.S. Pat. No. 6,157,991 to Arnon

U.S. Pat. No. 6,237,008 to Beal et al

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U.S. Pat. No. 6,446,175 to West et al

U.S. Pat. No. 6,912,629 to West et al

U.S. Pat. No. 6,912,630 to Pillai et al

U.S. Pat. No. 6,611,923 to Mutalik et al

U.S. Pat. No. 6,269,381 to St. Pierre et al

U.S. Pat. No. 6,047,294 to Deshayes et al

U.S. Pat. No. 6,360,330 to Mutalik et al

U.S. Pat. No. 6,718,352 to Dang et al

U.S. Pat. No. 5,742,792 to Yanai et al

U.S. Pat. No. 6,173,377 to Yanai et al

U.S. Pat. No. 6,502,205 to Yanai et al

U.S. Pat. No. 6,131,148 to West et al

U.S. Pat. No. 6,397,307 to Ohran

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaShonda T. Jacobs whose telephone number is 571-272-4004.

The examiner can normally be reached on 8:30 A.M.-5:00 P.M..


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LaShonda T Jacobs
Examiner
Art Unit 2157

ltj
September 28, 2005


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SUPERVISORY PATENT EXAMINER
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